

OBSERVATIONS ON THE BREEDING PATTERN OF *Steatoda grossa* (C.L. Koch, 1838)

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ABSTRACT

Six species of *Steatoda* are reported from India. Breeding pattern, time and number of egg sacs being laid by the spiders is reported. Number of eggs present in each egg sac and the mortality thereafter is reported. Incubation period and the duration for maturation of female and male spiders is also studied in natural as well as in captivity conditions. The study demonstrated a great variation in number of egg sacs and average size of egg sac being 5mm in diameter.

Keywords: Breeding, *Steatoda grossa*, Theridiidae.

INTRODUCTION

Spiders hold a very prominent position in environment especially in maintenance of ecosystem. *Steatoda* is a key species of food web and regulates population of insects also being food for Birds (Maelfait and Hendrickx, 1998). Spiders are highly adaptable in nature and are known to have a rich diversity and varied behavior. Theridiidae (Sundevall, 1833) includes almost 2000 known species from the world. *Steatoda* belongs to the Family Theridiidae. *Steatoda* is also known as “The False Widow Spider” because of its slight resemblance to *Latrodectus* “The Black Widow Spider” (Gilbert and William, 2010, Eberhard *et al.*, 2008).

Steatoda grossa were collected from Bagoda (22.5:75.9) Dist. Indore (M.P); India. They generally were collected from the cervices between rocks and walls.

This study provides information on lifecycle of this spider together with its breeding pattern considering number of egg sacs and efficiency of the sacs to produce spiderlings.

MATERIALS AND METHODS

Site of Collection

Spiders *Steatoda grossa* were collected from Bagoda (22.5:75.9) village from Depalpur Mandal, Indore District, Madhya Pradesh, India.

Sampling

Webs of spider were observed and studied at 40 sites. Collection of egg sacs was made in the first week of January. Each site was allotted a separate number and egg sacs were collected from each web in a separate vial. The selection criteria for web were random and no particular pattern was followed.

These spiders were reared on House fly and Drosophila. Houseflies were caught on daily basis while Drosophila were cultured by following standard methods.

Analysis

All the egg sacs collected were cut open and observed for eggs. The old sacs were observed for emergence of spiderlings and their moultings. Other parameters investigated included length of sac considering the spoke and without considering the spoke. The sac was also checked for its color and transparency.

For studying life cycle of *Steatoda grossa* the mature male and female were allowed to mate in big vials and time period was noted for laying of first egg sac and gap between laying of successive egg sacs. Each time the egg sac was laid it was properly observed for change in colour and then separated in different vial to ensure proper care. Egg sacs were also observed for change in colour with time.

RESULTS AND DISCUSSION

The size of egg sacs ranged between 4.15 mm – 6 mm and along the spoke, length was as long as 8.75 mm. The number of eggs per eggsac ranged from 48 to 72 in wild. However in captivity the number of eggs per eggsac was observed around 60 on an average.

In captivity female produced more number of offsprings per egg sac than in wild. After mating, the female *Steatoda* laid first egg sac within a week in 4-5 days. The incubation period was observed between 15-20 days.

The egg sac is pinkish white when laid but in later half it becomes blackish white and finally spider lings are hatched from the egg sac. The colour of eggs changes from pinkish yellow to black.

Female reproductive behavior is studied both in captivity and nature. In each field trip number of egg sacs per web were noted. *Steatoda grossa* was seen breeding in Monsoon (July – August) with one or more partner and then lay eggs until late December. In late December the spiderlings disperse and grow and become adults by the monsoon returns. On many webs dead mature females were also observed.

We observed ariation in number of egg sac laid by each female *Steatoda* and it varies from 2-13. Change in number of egg sacs probably depends on the size

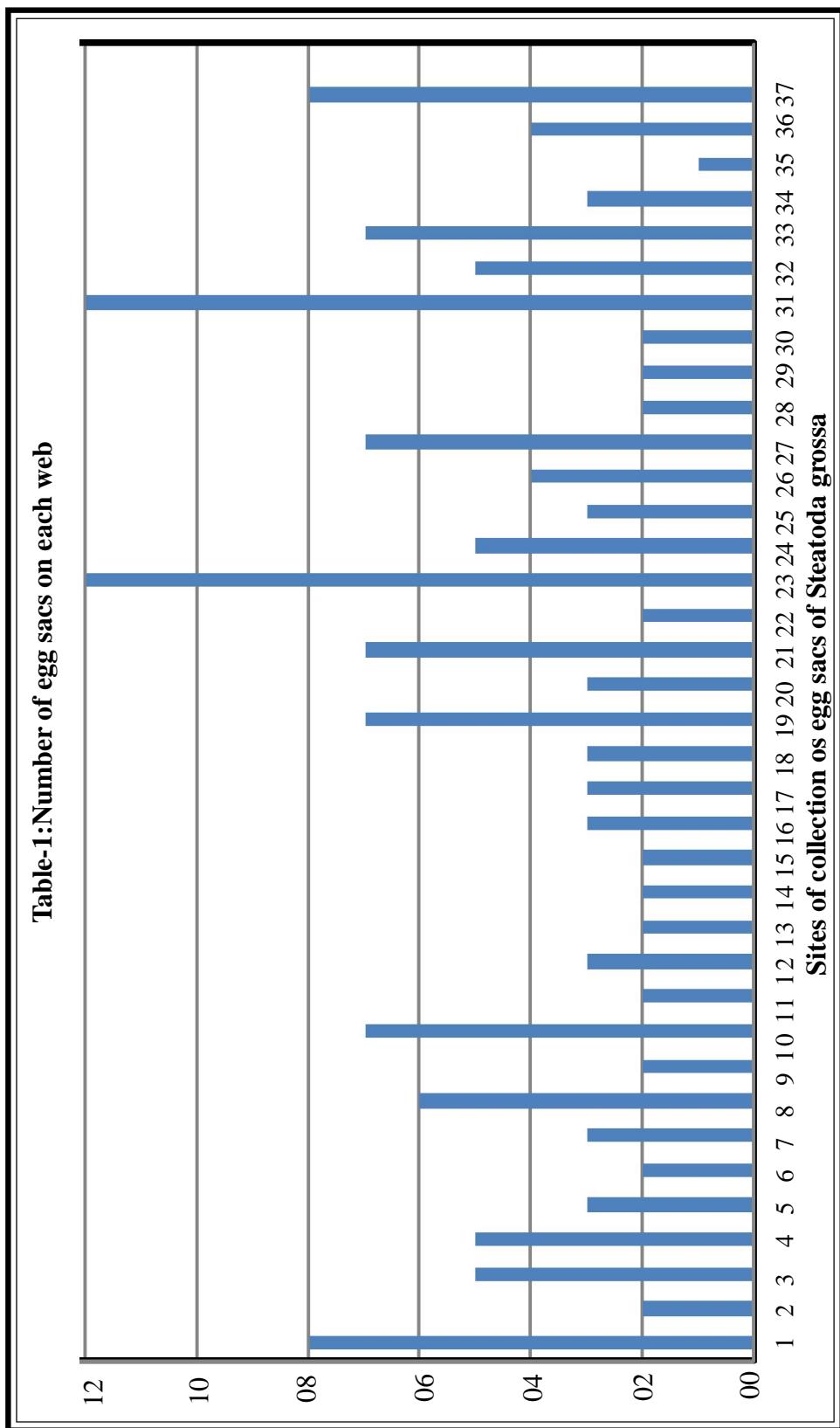




Figure-1: Egg sacs on the web of *Steatoda grossa*

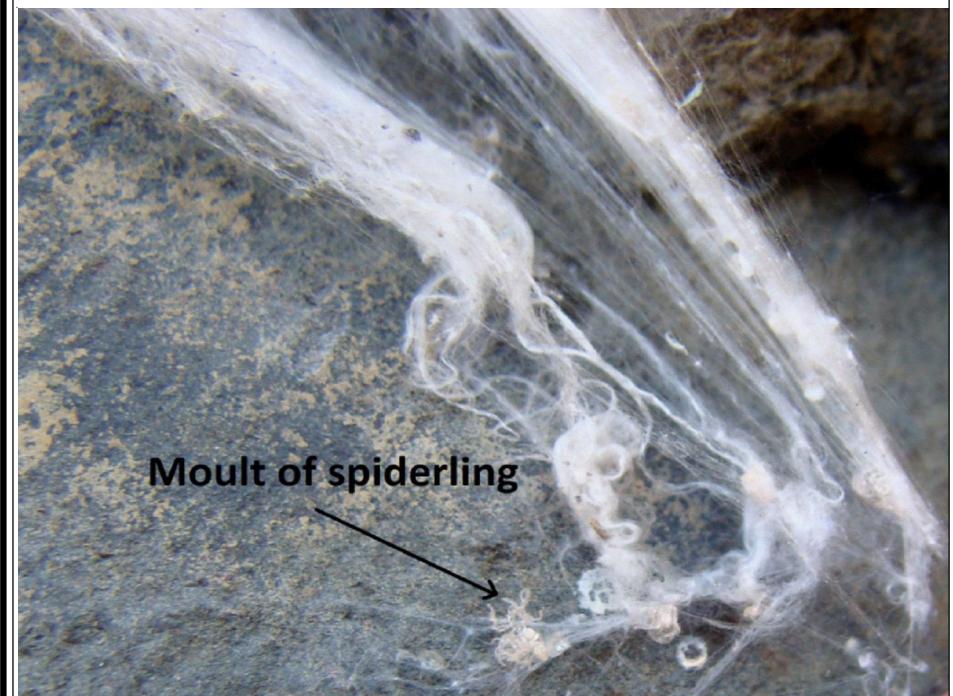


Figure-2: Molt of growing *Steatoda grossa* spiderling

of the territory of female. In captivity irrespective of availability of surplus food the number of egg sacs laid by the spider was less and further it is also observed less number of eggs in each egg sac. This is probably because of stress of space available.

In nature, egg sacs from a single territory of female exhibited great variations in size of the egg sac while in captivity all egg sacs were almost of equal size. The spoke in egg sacs were very prominent and were found on almost all egg sacs to ensure proper attachment on web

Young female capture prey and allow the young ones to feed on them (Gilbert and Martín, 2013). Spiderlings also feed in a group and show social behavior to some extent (Curtis and Carrel, 1999). As they grow cannibalism is observed even after surplus feed.

Death of female after laying eggs even when surplus food was provided can be due to existence of more spiderling or small territory.

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